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09/630,435	08/01/2000	Hwai-Tzuu Tai	N81346RLW	5694

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EXAMINER	
THOMPSON, JAMES A	

ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/630,435	TAI ET AL.	
	Examiner	Art Unit	
	James A. Thompson	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40-44,46,48,50-52,54-56,58 and 59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Tranlouch

DOUGLAS Q. TRAN
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 29 October 2007 have been fully considered but they are not persuasive. Firstly, Examiner agrees with Applicant that the present amendments to the claims distinguishes the claims over the cited prior art references, particularly Behlok (USPN 6,469,805 B1) and Hayashi (USPN 5,790,282). However, Examiner has discovered additional prior art which renders the presently amended claims obvious. The new grounds of rejection set forth below have been necessitated by the present amendments to the claims. Therefore, the present action is made final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 42, 44, 46, 48, 52 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behlok (US Patent 6,469,805 B1) in view of Tai (US Patent 5,956,157) and Gropp (Using MPI: Portable Parallel Programming with the Message Passing Interface, second edition, by William Gropp, Ewing Lusk, and Anthony Skjellum).

Regarding claim 48: Behlok discloses a method comprising: rasterizing image data of a print job to provide rasterized image data (column 5, lines 23-28 of Behlok); storing said rasterized image data in a job image buffer (column 5, lines 17-28 of Behlok – *job image buffer inherent in IPS since RIPped data must be stored on IPS at least during RIPping process*); outputting said rasterized image data from said job image buffer to provide output data (figure 2(104) and column 6, lines 4-6 of Behlok); accepting input of operator's adjustments of said output data following said outputting (column 5, lines 44-52 of Behlok); changing said output data in accordance with said operator's adjustments (column 6, lines 12-17 of Behlok); halftoning said changed output data to provide halftone rendered data (column 7, lines 38-40 of Behlok); and printing said print job from said halftone rendered data (column 7, lines 40-44 of Behlok).

Behlok does not disclose expressly that said halftoning further comprises performing at least first and second halftone processes in parallel on said output data to produce at least first and second halftoned data, respectively, and blending together said halftoned data in respective proportions determined from said changed output data.

Tai discloses performing at least first and second halftone processes on said output data to produce at least first and second halftoned data, respectively, and blending together said halftoned data in respective proportions (figure 8 and column 10, lines 17-36 of Tai – *different halftoning processes performed on the same data are blended according to the criteria*).

Behlok and Tai are analogous art because they are from the same field of endeavor, namely image data halftoning, processing and printing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the halftone screen blending technique taught by Tai to the system taught by Behlok. Since Behlok teaches that the output data is changed so as to provide for quality control by the user, the blending taught by Tai, in combination with Behlok, would result in said blending together of said halftoned data in respective proportions being determined from said changed output data. The motivation for doing so would have been that combining different type of halftoning provides for superior results since different parts of an image have different properties, and are thus better served by different halftone processes (column 5, lines 39-50 of Tai). Therefore, it would have been obvious to combine Tai with Behlok.

Behlok in view of Tai does not disclose expressly that said first and second halftone processes are performed *in parallel*.

Gropp discloses performing computational processing in parallel (see Section 3.6 [pages 35-42] of Gropp).

Behlok in view of Tai is analogous art with respect to Gropp because they are from similar problem solving areas, namely performing efficient digital computations. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform the at least two different halftone processes in parallel, rather than serially, as taught by Gropp. Processing two needed processes in parallel when both processes are computationally separable from each other would have been well within the ability of one of ordinary skill in the art at the time of the invention. Performing said first and second halftone processes in parallel produces predictable results, namely that both processes are performed at the same time, resulting in a reduction of overall processing time as compared with performing said first and second halftone processes serially. Therefore, it would have been obvious to combine Gropp with Behlok in view of Tai to obtain the invention as specified in claim 48.

Regarding claim 52: Behlok discloses a method comprising: rasterizing image data of a print job into one or more pages of rasterized image data (figure 2(108) and column 5, lines 23-33 of Behlok); separating said rasterized image data into separated rasterized contone gray level image data (column 5, lines 37-40 and column 5, line 60 to column 6, line 3 of Behlok – *demonstrates that RIPped data is separated into CMYK color separations, each color separation having contone gray level image data*); storing said separated rasterized image data in a job image buffer (column 5, lines 17-28 of Behlok – *job image buffer inherent in IPS since RIPped data must be stored on IPS at least during RIPping process*); producing each of a plurality of document sets (column 7, lines 38-44 of Behlok), said producing of each said set including: outputting said separated rasterized image data from said job image buffer to provide output data (figure 2(104) and column 6, lines 4-6 of Behlok); altering said output data in accordance with an operator's adjustments (column 6, lines 12-17 of Behlok); subjecting said altered output data to a halftone process to generate halftone rendered data (column 7, lines 38-40 of Behlok); and printing a document set from said halftone rendered data (column 7, lines 40-44 of Behlok), wherein said altering is in real-time during said printing of each of said sets (column 7, lines 1-22 of Behlok – *adjustments applied to post-RIP contone image data without any need for re-RIPping, and thus occurs during the printing of the sets*).

Behlok does not disclose expressly that said subjecting further comprises performing at least first and second halftone processes in parallel on said output data to produce at least first and second halftoned data, respectively, and blending together said halftoned data in respective proportions determined from said altered output data.

Tai discloses performing at least first and second halftone processes on said output data to produce at least first and second halftoned data, respectively, and blending together said halftoned data in respective proportions (figure 8 and column 10, lines 17-36 of Tai – *different halftoning processes performed on the same data are blended according to the criteria*).

Behlok and Tai are analogous art because they are from the same field of endeavor, namely image data halftoning, processing and printing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the halftone screen blending technique taught by Tai to the system taught by Behlok. Since Behlok teaches that the output data is altered so as to provide for quality control by the user, the blending taught by Tai, in combination with Behlok, would result in said blending together of said halftoned data in respective proportions being determined from said altered output data. The motivation for doing so would have been that combining different type of halftoning provides for superior results since different parts of an image have different properties, and are thus better served by

different halftone processes (column 5, lines 39-50 of Tai). Therefore, it would have been obvious to combine Tai with Behlok.

Behlok in view of Tai does not disclose expressly that said first and second halftone processes are performed *in parallel.*

Gropp discloses performing computational processing in parallel (see Section 3.6 [pages 35-42] of Gropp).

Behlok in view of Tai is analogous art with respect to Gropp because they are from similar problem solving areas, namely performing efficient digital computations. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform the at least two different halftone processes in parallel, rather than serially, as taught by Gropp. Processing two needed processes in parallel when both processes are computationally separable from each other would have been well within the ability of one of ordinary skill in the art at the time of the invention. Performing said first and second halftone processes in parallel produces predictable results, namely that both processes are performed at the same time, resulting in a reduction of overall processing time as compared with performing said first and second halftone processes serially. Therefore, it would have been obvious to combine Gropp with Behlok in view of Tai to obtain the invention as specified in claim 52.

Regarding claim 42: Behlok discloses that said rasterized image data is rasterized CMYK image data (column 5, line 62 to column 6, line 3 of Behlok).

Regarding claim 46: Behlok discloses that said data is not re-rasterized prior to said printing (column 7, lines 14-22 of Behlok – *adjustments applied to post-RIP contone image data without any need for re-RIPping*).

Regarding claim 56: Behlok discloses an image processing system (figure 1 of Behlok) comprising: a raster image processor (figure 1(48) of Behlok) rasterizing image data of a print job having a plurality of document sets (column 5, lines 23-33 of Behlok); a job image buffer storing said rasterized image data (column 5, lines 17-28 of Behlok – *job image buffer inherent in IPS since RIPped data must be stored on IPS at least during RIPping process*); a printer (figure 1(26) of Behlok) printing each of said document sets of said print job (column 7, lines 40-44 of Behlok); and an image processor (figure 1(18) of Behlok) repeatedly receiving said rasterized image data from said job image buffer (column 7, lines 1-22 of Behlok – *adjustments applied to post-RIP contone image data without any need for re-RIPping*), changing said data in accordance with an operator's adjustments (column 6, lines 12-17 of Behlok) and halftoning said data (column 7, lines 38-40 of Behlok), and then delivering said data to said printer for use in printing respective ones of said document sets (column 7, lines 40-44 of Behlok).

Behlok does not disclose expressly that said subjecting further comprises performing at least first and second halftone processes in parallel on said output data to produce at least first and second halftoned data, respectively, and blending together said halftoned data in respective proportions determined from said changed output data.

Tai discloses performing at least first and second halftone processes on said output data to produce at least first and second halftoned data, respectively, and blending together said halftoned data in respective proportions (figure 8 and column 10, lines 17-36 of Tai – *different halftoning processes performed on the same data are blended according to the criteria*).

Behlok and Tai are analogous art because they are from the same field of endeavor, namely image data halftoning, processing and printing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the halftone screen blending technique taught by Tai to the system taught by Behlok. Since Behlok teaches that the output data is changed so as to provide for quality control by the user, the blending taught by Tai, in combination with Behlok, would result in said blending together of said halftoned data in respective proportions being determined from said altered output data. The motivation for doing so would have been that combining different type of halftoning provides for superior results since different parts of an image have different properties, and are thus better served by different halftone processes (column 5, lines 39-50 of Tai). Therefore, it would have been obvious to combine Tai with Behlok.

Behlok in view of Tai does not disclose expressly that said first and second halftone processes are performed *in parallel*.

Gropp discloses performing computational processing in parallel (see Section 3.6 [pages 35-42] of Gropp).

Behlok in view of Tai is analogous art with respect to Gropp because they are from similar problem solving areas, namely performing efficient digital computations. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform the at least two different halftone processes in parallel, rather than serially, as taught by Gropp. Processing two needed processes in parallel when both processes are computationally separable from each other would have been well within the ability of one of ordinary skill in the art at the time of the invention. Performing said first and second halftone processes in parallel produces predictable results, namely that both processes are performed at the same time, resulting in a reduction of overall processing time as compared with performing said first and second halftone processes serially. Therefore, it would have been obvious to combine Gropp with Behlok in view of Tai to obtain the invention as specified in claim 56.

Regarding claim 44: Behlok discloses that said rasterized print job is rasterized CMYK image data (column 5, line 62 to column 6, line 3 of Behlok).

5. Claims 40-41, 43, 51, 55 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behlok (US Patent 6,469,805 B1) in view of Tai (US Patent 5,956,157), Gropp (Using MPI: Portable Parallel Programming with the Message Passing Interface, second edition, by William Gropp, Ewing Lusk, and Anthony Skjellum), and Hayashi (US Patent 5,790,282).

Regarding claim 40: Behlok discloses that the changing step changes color characteristics (column 6, lines 20-24 of Behlok).

Behlok in view of Tai and Gropp does not disclose expressly that the changing step changes a color saturation.

Hayashi discloses changing a color saturation (column 8, lines 30-37 of Hayashi).

Behlok in view of Tai and Gropp is analogous art with respect to Hayashi because they are from the same field of endeavor, namely digital image data processing, correction and alteration in color image data printing devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically have color saturation as one of the color characteristics that can be changed. The suggestion for doing so would have been that Behlok allows for many different types of color and image correction, and color saturation is another attribute that affects the overall appearance of an output image, and would thus be a useful attribute to allow a user to modify. Therefore, it would have been obvious to combine Hayashi with Behlok in view of Tai and Gropp to obtain the invention as specified in claim 40.

Regarding claims 41 and 43: Behlok discloses that the altering changes color characteristics (column 6, lines 20-24 of Behlok).

Behlok in view of Tai and Gropp does not disclose expressly that the altering changes a color saturation.

Hayashi discloses changing a color saturation (column 8, lines 30-37 of Hayashi).

Behlok in view of Tai and Gropp is analogous art with respect to Hayashi because they are from the same field of endeavor, namely digital image data processing, correction and alteration in color image data printing devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically have color saturation as one of the color characteristics that can be altered. The suggestion for doing so would have been that Behlok allows for many different types of color and image correction, and color saturation is another attribute that affects the overall appearance of an output

image, and would thus be a useful attribute to allow a user to modify. Therefore, it would have been obvious to combine Hayashi with Behlok in view of Tai and Gropp to obtain the invention as specified in claims 41 and 43.

Regarding claims 51 and 59: Behlok discloses that said rasterized image data (or print job) is color separated contone gray level image data (column 5, lines 37-40 and column 5, line 60 to column 6, line 3 of Behlok – *demonstrates that RIPped data is separated into CMYK color separations, each color separation having contone gray level image data*).

Behlok in view of Tai and Gropp does not disclose expressly that said printing further comprises recording said halftone rendered data on a recording surface as a plurality of color separation images in a superposed registered relationship and transferring said superposed color separation images to a receiver sheet to form a process color image.

Hayashi discloses recording halftone rendered data on a recording surface (column 3, lines 35-54 of Hayashi) as a plurality of color separation images (column 3, lines 33-34 and lines 60-67 of Hayashi), in superposed registered relationship (column 3, lines 54-67 of Hayashi) and transferring said superposed color separation images to a receiver sheet to form a process color image (column 3, lines 60-67 of Hayashi).

Behlok in view of Tai and Gropp is analogous art with respect to Hayashi because they are from the same field of endeavor, namely digital image data processing, correction and alteration in color image data printing devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to print an image and plural color separation images on a receiver sheet in superposed registered relationship, as taught by Hayashi, wherein the image is the changed RIP Data taught by Behlok. The motivation for doing so would have been to provide an output for the resultant color image (column 3, lines 33-34 of Hayashi). Therefore, it would have been obvious to combine Hayashi with Behlok in view of Tai and Gropp to obtain the invention as specified in claims 51 and 59.

Regarding claim 55: Behlok in view of Tai and Gropp does not disclose expressly that said printing further comprises recording said halftone rendered data on a recording surface as a plurality of color separation images in a superposed registered relationship and transferring said superposed color separation images to a receiver sheet to form a process color image.

Hayashi discloses recording halftone rendered data on a recording surface (column 3, lines 35-54 of Hayashi) as a plurality of color separation images (column 3, lines 33-34 and lines 60-67 of Hayashi), in superposed registered relationship (column 3, lines 54-67 of Hayashi) and transferring said superposed

color separation images to a receiver sheet to form a process color image (column 3, lines 60-67 of Hayashi).

Behlok in view of Tai and Gropp is analogous art with respect to Hayashi because they are from the same field of endeavor, namely digital image data processing, correction and alteration in color image data printing devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to print an image and plural color separation images on a receiver sheet in superposed registered relationship, as taught by Hayashi, wherein the image is the changed RIP Data taught by Behlok. The motivation for doing so would have been to provide an output for the resultant color image (column 3, lines 33-34 of Hayashi). Therefore, it would have been obvious to combine Hayashi with Behlok in view of Tai and Gropp to obtain the invention as specified in claim 55.

6. Claims 50, 54 and 58 are rejected under 35 U.S. C. 103(a) as being unpatentable over Behlok (US Patent 6,469,805 B1) in view of Tai (US Patent 5,956,157), Gropp (Using MPI: Portable Parallel Programming with the Message Passing Interface, second edition, by William Gropp, Ewing Lusk, and Anthony Skjellum), Hayashi (US Patent 5,790,282) ,and Miller (US Patent 5,731,823).

Regarding claims 50, 54 and 58: Behlok in view of Tai and Gropp does not disclose expressly that said halftoning further comprises modifying said blended first and second halftoned data into a binary file and subjecting the binary image file to an edge enhancement process to reduce jaggedness.

Hayashi discloses modifying said blended first and second halftoned data into a binary image file: After the image data is processed, said image data is sent to the output control circuit, which then generates the signals needed to output said image data (column 5, lines 1-6 of Hayashi). In order to output said image data after processing, the creation of a binary image file for the output in some form, whether on a hard drive, in RAM, *et cetera*, is inherently required. Otherwise, there would no longer be any data to access for the purpose of output.

Behlok in view of Tai and Gropp is analogous art with respect to Hayashi because they are from the same field of endeavor, namely digital image data processing, correction and alteration in color image data printing devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to take the output of the blending operation and modify said output into a binary image file, as taught by Hayashi. The motivation for doing so would have been to have the binary data with which to produce an output signal for the printer (column 5, lines 4-6 of Hayashi). Therefore, it would have been obvious to combine Hayashi with Behlok in view of Tai and Gropp.

Behlok in view Tai, Gropp and Hayashi does not disclose expressly subjecting the binary image file to an edge enhancement process to reduce jaggedness.

Miller discloses subjecting the binary image file to an edge enhancement process to reduce jaggedness (column 9, lines 50-52 of Miller).

Behlok in view of Tai, Gropp and Hayashi is analogous art with respect to Miller because they are from the same field of endeavor, namely digital image document data halftoning and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to enhance the edges in the binary image file, thus reducing the jaggedness in the image. The motivation for doing so would have been to enhance the edge definition in the image (column 9, lines 51-52 of Miller). Therefore, it would have been obvious to combine Miller with Behlok in view of Tai, Gropp and Hayashi to obtain the invention as specified in claims 50, 54 and 58.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James A. Thompson
Examiner
Technology Division 2625

/JAT/
28 December 2007

DOUGLAS Q. TRAN
PRIMARY EXAMINER